EXHIBIT 1-B

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DRAFT

INTERIM MEASURES CONSTRUCTION WORK PLAN

VOLUME II

Prepared for
Container Properties, L.L.C.
Former Rhone Poulenc Site

July 2002

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APPENDIX J

PERFORMANCE MONITORING PLAN

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4.1 Performance Monitoring — Water Level Measurement

Water level monitoring will be the primary determinant of whether the wall is meeting the performance goals. The following discussion clarifies how measurement of water levels can determine how the wall is performing.

The barrier walls and the aquitard will behave ideally if they minimize the response within the wall to tidal fluctuations. Ideal behavior can also be demonstrated if pumping within the wall causes no noticeable change in water level outside the barrier wall. If the barrier wall is performing to specifications and if the aquitard is relatively homogenous, the ideal behavior of water levels inside the wall in response to pumping will be relatively uniform and flat across the site away from the immediate vicinity of the extraction well(s). This is because the wall will ideally limit horizontal inflow of groundwater in response to the imposed inward hydraulic gradient. If the wall leaks, then the uniform pattern will be altered, and the wells near the leak along the interior of the wall should show higher groundwater elevations than those away from the leak. Such mounding could occur in either of the aquifer zones since the wall has the potential for leakage along its entire length and depth. This mounding would impart a detectable slope to the water table as water leaks through the wall.

However, even if the barrier wall is performing ideally, the underlying aquitard may leak and the tidal signal could be transmitted inside the wall. If the aquitard has a preferential vertical flow path, then apparent groundwater mounding will occur in the deeper (Intermediate/Lower) zone wells across the site, since the water will be flowing vertically upwards from aquitard in response to pumping. During pump operation, water levels will need to be collected from the barrier well network and across the site using existing monitoring wells to diagnose these differing types of behaviors. Relatively little overall change in water levels is expected once groundwater flow conditions within the wall have reached steady state. Even if the walls or aquitard leak, steady state control of water levels as needed to attain the appropriate inward gradient can be achieved by pumping larger quantities of groundwater. The magnitude and impact of the leakage will be determined before any decisions are made concerning the need for mitigation efforts.

The water level data collected during the pre-operational monitoring phase prior to startup of the extraction system will ensure that the most representative well pair is used to control the operation of the groundwater extraction system. Collection of pre-operational and post-operational water levels is discussed fully in the following subsections.

4.1.1 Pre-Operational Water Level Monitoring

During start-up operations, 13 of the exterior barrier network wells and the 12 interior barrier network wells will be monitored for a period of 1 month on a continuous basis using data loggers equipped with pressure transducers. The water level data will be used to confirm that there are no significant failures in the barrier wall, as described above. Figure 4-1 shows the location of the wells that will be monitored by transducers for pre-operational monitoring. Due to the stated EPA concerns regarding whether the Impermix wall has cured sufficiently, both the 1-month long water level monitoring program and any groundwater extraction pump tests will be initiated

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after the wall has cured for one month. It should be noted that water level monitoring will occur after the continuous water levels have been collected.

The continuous water level data will be used to select the wells that will control the water level inside the barrier wall. This approach is described in detail in the following section.

4.1.2 Operational Water Level Monitoring

An inward hydraulic gradient will be maintained into the containment area by groundwater withdrawal from within the barrier wall. The performance standard for maintaining the inward gradient will be maintaining the mean level of the groundwater within the containment area at a level 1-foot below the mean groundwater level as measured in monitoring wells outside the barrier. This approach is considered equivalent in protectiveness to maintaining a 1-foot difference in water level relative to the Duwamish Waterway, as proposed by EPA. This approach will simplify water level monitoring, will improve overall effectiveness of the monitoring system, will be used to automatically control pumping, and will improve safety when compared to direct monitoring at the river level. Differences in water levels between the Upper and Intermediate/Lower zone wells in each well pair will be compared as described in Section 4.1 to monitor for leakage through the wall, or vertical groundwater flow through the aquitard.

The proposed barrier wall groundwater water level measurements will be collected to confirm that hydraulic gradient performance criteria are met. The pumping system will be designed to operate using pressure transducers placed within a single well inside the wall and a similarly constructed well located outside the barrier wall. The pump controller will be set to automatically maintain the desired difference between the mean groundwater levels in the selected wells. An appropriate statistical procedure will be used by the automatic control system to determine the mean groundwater level both inside and outside the barrier wall for the same time period.

The proposed continuous water level monitoring approach can be easily implemented and maintained, allowing real time acquisition and continuous measurements, whereas it would be difficult to install and maintain an automated data acquisition system using a river gauge. Measuring water level in the aquifer outside the wall takes advantage of the dampening effect in the aquifer and the absence of wakes will make interpretation of results more reliable. Ready access provided by installation in a well will simplify maintenance and improve reliability.

For the longer term, and until steady state is reached, monthly manual monitoring of water levels in all 25 barrier network wells both inside and outside the barrier wall will be conducted in addition to continuous monitoring of two wells for control purposes. In addition, water levels will be manually measured in nine existing interior monitoring wells during the same event to determine how the water table within the wall responds to pumping. Figure 4-1 shows the location of the wells that will be monitored manually along with the barrier network wells.

Monthly water level monitoring of the wells shown in Figure 4-1 will be adequate to confirm performance of the barrier wall and groundwater recovery system, and to detect failure with

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Seven interior monitoring wells will be sampled annually, and the samples will be analyzed for BTEX and the limited metals suite (arsenic, chromium, copper, lead, mercury, nickel, vanadium, and zinc) The reduction in the number of metals being reported is justified since cadmium, selenium and thallium have either not been detected, or have been detected sporadically since monitoring commenced.

The six exterior wells sampled for major cations and anions will be the same as those sampled previously for the same analyses during pre-construction monitoring. These samples will be collected during the first and third quarterly groundwater sampling events. These results will help show changes in groundwater chemistry after the wall has been installed. The data will be plotted on ternary diagrams to show how water chemistry has changed after wall installation.

4.3 Performance Monitoring Schedule

Performance monitoring for water levels will commence as soon as the wall is installed. The groundwater extraction system operation, and operational performance monitoring for water levels, BTEX, dissolved metals and general parameters will start approximately two months after the initial water levels have been recorded, interpreted, and the control wells selected.

5.0 WELL ABANDONMENT

Once the wall is complete many existing monitoring wells inside the barrier wall will be abandoned since there is little justification for maintaining such a large network of wells and the wells could interfere with site operations and could lead to additional contamination. After the performance of the barrier wall has been established and steady state conditions have been reached, Container Properties will prepare, for EPA's review, a list of wells that will be abandoned following Ecology monitoring well abandonment guidelines.

6.0 QUALITY ASSURANCE/QUALITY CONTROL

All groundwater samples and water levels collected during the pre-construction and performance monitoring programs will be collected and analyzed in accordance with:

- Groundwater Monitoring Plan, Former Rhone-Polenc Inc. Facility, 9229 East Marginal Way South, Tukwila, Washington (AGI, August 29, 1999).
- Appendix F, Data Management Plan, Hydraulic Control Interim Measures Former Rhone-Polenc, Inc. Facility, 9229 East Marginal Way South, Tukwila, Washington (AGI, November 15, 2000).
- Appendix G, Data Collection and Quality Assurance Plan, Hydraulic Control Interim Measures Former Rhone-Polenc, Inc. Facility, 9229 East Marginal Way South, Tukwila, Washington (AGI, November 15, 2000).